

Groundwater Characterization and Monitoring Wells



Overview

Los Alamos National Laboratory will drill six additional groundwater characterization and monitoring wells in locations near Technical Area (TA) 54, the Laboratory's waste storage and disposal facility. Laboratory personnel expect that actual construction of the wells will begin at the end of May and will be completed by Sept. 30, 2002.

Completion of the wells by that date will bring the hydrogeologic work plan back on schedule and will give additional data that will help Laboratory and regulatory personnel better understand whether legacy operations could affect the environment, or the health and safety of the public.

The Hydrogeologic Characterization Program has been ongoing for the past four years; it complements the groundwater surveillance program that has been monitoring wells — including the Los Alamos County water-supply wells — for more than 30 years.

The Laboratory has installed eleven characterization wells in the regional aquifer to date as part of the characterization effort. Each well is strategically located to serve a long-term monitoring mission; some are installed up-gradient of water-supply wells to serve as sentry wells.

The refined understanding of the hydrogeologic setting beneath the Pajarito Plateau obtained through the characterization effort will provide a better foundation for current and future monitoring and for groundwater-protection activities.



Well Process

The six wells are expected to cost a total of \$8 million; that funding has been approved by Laboratory senior management and Department of Energy and National Nuclear Security Administration officials.

The procurement process for this project is under way; actual drilling most likely will begin at the end of May. Drilling and completion of the wells will continue through the summer and fall of 2002.

The six wells will be drilled into the regional aquifer. Crews will collect water and rock samples as the drilling proceeds; the information obtained will add to the Laboratory's knowledge of the regional aquifer and also will assist state and local agencies that have an interest in the aquifer. Modeling information about the aquifer is shared with community utility professionals to aid in their water planning.

The wells will be constructed with well-understood and proven drilling techniques designed to avoid any potential contamination of groundwater as a result of the drilling process.

After the wells are completed, they will allow the Laboratory, state and federal regulatory agencies to routinely sample the regional aquifer.

Four of the six wells will be located in the vicinity of TA-54; one will be located in 10 Site Canyon — which may show potential impacts of historic wastewater discharges to Mortandad Canyon. The sixth well will be located close to the community of White Rock, near the Rio Grande.

An earlier characterization and monitoring well near TA-54, known as R-22, indicates that the area near the waste disposal and storage facility is very dry and that the regional aquifer lies 700 feet below the surface. Samples taken from the regional aquifer at R-22 do not indicate any contaminants in the water that exceed federal drinking water standards.

The six wells planned for completion in 2002 will add to the 11 already in place that provide data.

Ensuring Water Safety

Regular sampling and analysis of water from the deep aquifer below Los Alamos shows that the water meets all federal drinking water standards. In fact, when compared to other municipal drinking water supplies in New Mexico, Los Alamos County's drinking water ranks among the highest for purity and quality.

Tests of groundwater from the deep aquifer in the Los Alamos area have shown the presence of very small amounts of tritium, high explosives and perchlorate in limited locations. Further monitoring will allow the Laboratory to effectively develop environmental restoration strategies.

The Laboratory has successfully conducted numerous activities that have significantly reduced or removed potential sources of groundwater contamination. Laboratory Environmental Restoration personnel have tackled such projects as reducing the number of wastewater outfalls, implementing waste reduction and recycling strategies and cleaning up sites that had been contaminated during legacy operations. These efforts are ongoing.



Los Alamos National Laboratory is operated by the University of California for the U.S. Department of Energy's National Nuclear Security Administration